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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,873	05/26/2006	Roberto Caputo	Q92551	1949

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EXAMINER	
ANGEBRANNDT, MARTIN J	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,873	CAPUTO ET AL.	
	Examiner	Art Unit	
	Martin J. Angebranndt	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/21/06 & 1/9/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/21/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Caputo et al., "Formation or a grating of submicrons nematic layers by photopolymerization of nematic containing mixtures", J. Experimental and theoretical physics, Vol. 91(6) pp. 1190-1197 (2000).

Caputo et al., "Formation or a grating of submicrons nematic layers by photopolymerization of nematic containing mixtures", J. Experimental and theoretical physics, Vol. 91(6) pp. 1190-1197 (2000) teaches the SAM-114 – 5CB mixtures which are polymerized to form a grating at a temperature of 55 degrees C and slowly cooled over a 40-50 minute period (to room temperature, 25 degree C) for a rate 0.75 to 0.6 degrees C/min. the diffraction efficiency is shown in figure 4. Similar data is shown for SAM-BL036 in figure 7. NOA-5CB was heated to 45 degrees C. (see figure 11).

The reference clearly describes slow cooling and with respect to claim 5, the instant application fails to provide evidence that the rate of cooling recited is critical.

4. Claims 1-8 and 11-12 are rejected under 35 U.S.C. 102(b) as being fully anticipated by De Filpo et al., "Switchable gratings form polymerized nematic emulsions", Adv. Funct. Mater., Vol. 11(6) pp. 457-460 (2001).

De Filpo et al., "Switchable gratings form polymerized nematic emulsions", Adv. Funct. Mater., Vol. 11(6) pp. 457-460 (2001) teaches a grating exposure at room temperature , followed by heating to 100 degrees C and simultaneous (flood) exposure.

With respect to the article, there is no evidence in the record of the criticality of the cooling process.

5. Claims 1-8 and 11-12 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Sutherland et al. '157.

The formation of PDLC diffraction gratings with near 100% diffraction efficiency is described (abstract)

For the article, the process need not be shown until the applicant provides evidence that the process results in a materially different product than that of the prior art.

6. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margerum et al. '568 or Caputo et al., "Formation or a grating of submicrons nematic layers by photopolymerization of nematic containing mixtures", J. Experimental and theoretical physics, Vol. 91(6) pp. 1190-1197 (2000), in view of Nishiguchi et al. '553.

Margerum et al. '568 teaches with respect to figure 12-15, the polymerization using a grating exposure where the LC bubble size is affected by UV exposure intensity, exposure

temperature, and concentration of the initiator (abstract). The grating exposure is described in example 8. Examples 5 and 7 describe exposures at temperatures above room temperature and specifically describes higher temperatures as resulting in smaller bubbles (8/57-9/6 & 9/20-42).

Nishiguchi et al. '553 teaches that when UV exposure of PDLC materials is performed at high temperatures, the cooling speed should be 3 to 20 degrees/hr to stabilize the orientation of the LC molecules (.0.05 to 0.33 degrees/min) (8/54-59).

It would have been obvious to modify the grating exposure process of example 8 of Margerum et al. '568 by performing the exposure at higher temperature, such as 30 degrees C to decrease the bubble size and increase contrast as taught in examples 5 and 7 and to cool the composition after the exposure slowly in the range of 0.1 to 0.3 degrees C/min as taught by Nishiguchi et al. '553 to form small bubbles with a reasonable expectation of success based upon the common use of PDLC materials in the references. Alternatively, it would have been obvious to one skilled in the art to modify the example of Caputo et al., "Formation or a grating of submicrons nematic layers by photopolymerization of nematic containing mixtures", J. Experimental and theoretical physics, Vol. 91(6) pp. 1190-1197 (2000) by cooling the composition slowly in the range of 0.1 to 0.3 degrees C/min as taught by Nishiguchi et al. '553 to form small bubbles with a reasonable expectation of success based upon the common use of PDLC materials in the references.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin J Angebranndt/
Primary Examiner, Art Unit 1795

Martin J Angebranndt
Primary Examiner
Art Unit 1795

8/27/2008